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ABSTRACT

In line with current thinking in transformational grammar, syntax as a system can and should be studied before a study is made of the use of that system. Chomsky's lexical redundancy rule is an area for further study, possibly to come closer to defining and achieving explanatory adequacy. If it is observed that English nouns come in two types, with the members of one set differing from the members of the other by a constant phonological and semantic increment, it is possible to note a generality by choosing one of each pair of nouns to represent both in the lexicon and then construct rules allowing for the general similarity. When all the regular relations between lexical items are expressed, the result is a set of simplified lexical entries, each one an abbreviation for one or more fully specified lexical items, and a set of redundancy rules expressing the relevant generalities and subgeneralities of the lexicon. Given here are the major types of lexical redundancy rules for English nouns and what they can accomplish. Actual rules and examples are provided. A list of references is included.
(Author/VM)

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Some Lexical Redundancy Rules for English Nouns

Stanley Starosta

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In recent years, since the publication of Chomsky's 'Aspects of the Theory of Syntax' we've been observing a vast increase in the power and abstractness of generative transformational grammar. With the recent addition of global derivational constraints by the generative semanticians, it appears that transformational grammar is getting perilously close to omnipotence. Many theoretical linguists are understandably uneasy about this, because of the fact that a stronger theory makes a weaker claim.

It may be the case that all the power provided by current generative models is ultimately indispensable, but since this is by no means clear as yet, other approaches might also be investigated. One conceivable approach, and the one I will adopt here, is to assume that syntax as a system can and should be studied before we can study the use of that system in communication, since that would necessarily require an account of anaphoric phenomena like pronominalization and reference. The main descriptive device I adopt in implementing this approach is the lexical redundancy rule, introduced in Chomsky's Aspects but not greatly exploited since then.

A lexical redundancy rule states a generality about the relation between two groups of lexical items. If we find for example that English nouns come in two types, with the members of one set

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differing from the members of the other by a constant and statable phonological and semantic increment, we can capture a generality by choosing one of each pair of nouns to represent both in the lexicon, and by writing two redundancy rules to express the facts that 1) each noun entry is really an abbreviation for two lexical items, one singular and one plural, say, and another rule to state that 2) plural nouns differ from singular nouns by the addition of an 's'. Thus instead of the lexical items dog, dogs, cat, cats, horse, horses, we will have only the entries dog, cat, horse, and two rules to expand them into the six lexical items for which they are abbreviations. Exceptions to these rules are marked in the exceptional items in the lexicon; thus sheep is marked as an exception to the s-plural rule but not the rule that says nouns come in singular and plural varieties; pant is marked as an exception to the latter rule, but not to the s-plural rule; and words like cattle and people are marked as exceptions to both rules. When we have expressed all the regular relations between lexical items, the result is a set of simplified lexical entries, each one an abbreviation for one or more fully specified lexical items, and a set of redundancy rules expressing the relevant generalities and sub-generalities of the lexicon.

The resulting feature matrices and their similarity to phonological matrices suggests the next logical step: to try to relate the kind of simplicity achieved here to the more general and significant concept of naturalness by introducing the concept of markedness. Thus instead of saying that beer is [+mass] and boy is [-mass], we might say that beer is marked for mass and that boy is unmarked, thus further simplifying the lexical entry for boy and expressing the generality that the optimal noun is a count noun. The markings are then interpreted by universal and language-specific marking conventions. The resultant simplification is a significant one, since the simplicity metric will choose the simplest grammar, and that grammar will be simplest which makes the most use of the universal conventions we propose instead of language-specific rules.

The following tables illustrate the use of marking conventions to state lexical entries for some English nouns, pronouns, and determiners. Figures 1, 2, and 3 list lexical entries with all marked and unmarked features indicated.

Figure 1. Determiners

	the	our	these	this	those	that	a(n)	several	much	some
Det	m	m	m	m	m	m	m	m	m	m
N	u	u	u	u	u	u	u	u	u	u
Nom	u	u	u	u	u	u	u	u	u	u
def	u	u	u	u	u	u	m	m	m	m
art	m	u	u	u	u	u	u	u	u	u
plur	u	u	m	u	m	u	u	m	u	u
DETPRON	u	u	u	u	u	u	m	u	u	u
derived	u	m	u	u	u	u	u	u	u	u
numb		u	m	m	m	m	m	m	u	u
prox			m	m	u	u				
mass			-				u	m	m	u

Figure 2. Pronouns

	you	us	we	them	they	me	I	her	she	him	he	it
pron	m	m	m	m	m	m	m	m	m	m	m	m
N	m	m	m	m	m	m	m	m	m	m	m	m
def	u	u	u	u	u	u	u	u	u	u	u	u
Det	u	u	u	u	u	u	u	u	u	u	u	u
Voc	u	u	u	u	u	u	u	u	u	u	u	u
derived	u	u	u	u	u	u	u	u	u	u	u	u
addr	m	u	u	u	u	u	u	u	u	u	u	u
plur	u	m	m	m	m	u	u	u	u	u	u	u
Nom	u	m	u	m	u	m	u	m	u	m	u	u
POSSPRON	m	u	u	u	m	(m)	u	m	u	u	m	(m)
spkr		m	m	u	u	m	m	u	u	u	u	u
anim								m	m	m	m	u
masc								m	m	u	u	

Figure 3. Nouns

	oat	pant	people	cattle	scissor	Uncola	Gatoraid	beer	wheat	hickory	oat	Hague	Cowznowski	mister	Marvin	person	people	egg	king	cow	lamb	boy	doctor	Leutenant	daisy	rose	pope	president	government
N	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
pron	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u
mass	m	u	u	u	u	m	m	m	m	m	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u
def	u	u	u	u	u	m	m	u	u	u	u	m	m	m	m	u	u	u	u	u	u	u	u	u	u	u	u	u	u
plur	m	m	m	m	m	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u
SPLUR	u	u	m	m	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u
Det	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u
Nom	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u
Voc	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u
derived	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u	u
TITLE	u	u	u	u	u			u	u	u	u				u	u	u	m	u	u	u	m	m	u	u	m	m	u	
FEMINAME	u	u	u	u	u			u	u	u	u				u	u	u	u	u	u	u	u	m	m	u	u	u		

Figure 3. Nouns, continued

	oat	pant	people	cattle	scissor	Uncola	Gatoraid	beer	wheat	hickory	oat	Hague	Cowznowski	mister	Marvin	person	people	egg	king	cow	lamb	boy	doctor	Leutenant	daisy	rose	pope	president	government
PSURN	u	u	u	u	u			u	u	u	u					u	u	u	m	u	u	u	u	u	m	u	u	u
UNIQ	u	u	u	u	u			u	u	u	u					u	u	u	m	u	u	u	u	u	u	m	m	u
COLLECT	u	u	u	u	u			u	u	u	u					u	u	u	u	u	u	u	u	u	u	u	u	m
[+art]__						m	u					m	u	u	u													
surn						u	u					u	u	u	m													
masc															u													
CM		u	u	u	u							u	u	u	u	u	u	m	u	u	m	u	u	u	u	u	u	u

Not all the markings listed actually occur in the lexical item in the lexicon, of course; in fact, all the 'm' and 'u' specifications except the underlined m's are predictable by the redundancy rules and conventions on the following pages. Thus the lexical entry for she has only one feature, [m masc], and it also has only one, [m pron]. Nevertheless, when all the m features have been specified by universal and language-specific redundancy rules, we find that she, with four m's, is more marked than it, with only one, and less marked than her, with six. The entries for nouns here are not fully specified, since for the present I have limited myself to only those features which have direct and observable syntactic consequences, and I thus have not gone into a full componential analysis of English nouns.

The rules given below expand each entry into one or more fully specified lexical items, each one distinct from every other in at least one feature. There are five major types of rules assumed: universal and language-specific redundancy rules come first (1-6); they predict certain marked features in terms of others. For example, part of rule 6 says that anything marked for definite must be a Noun. The capital U following the rule signifies the claim that this rule is universal. Note that this is

not a claim that all languages have a proper-common distinction, but only that if they do, all entries marked m def must be nouns. The last part, on the other hand, is a purely English phenomenon, as indicated by the capital E. It says no entry need be marked as an exception to the S-PLURAL rule unless it is a noun. Capital G designates rules which are characteristics of certain language types, though not universal in the same sense that the others are. Lower case u after a rule indicates a universal rule with a language-specific restriction on its range of application. For example, rule 19 says that animateness is distinctive only for pronouns, whereas for three-gender languages like German, and ultimately perhaps also for English, animateness is relevant to all nouns, not just to pronouns.

Implicational Redundancy Rules

1.	[m prox] → [m numb]	E
2.	[m masc] → [m anim]	U
3.	{ [m numb], [m art] } → [m Det]	E
		U
4.	{ [m spkr], [m addr], [m Nom], [m anim] } → [m pron]	U
5.	[m [+art] ____] → [m def]	E
6.	{ [m CM], [m PSURN], [m TITLE], [m def], [m pron], [m FEMINAME], [m UNIQ], [m COLLECT], [m SPLUR] } → [m N]	U
		U
		U
		U
		U
		u
		U
		E (Br.)
		E

Conventions on Rule Application

1. The rules are ordered.
2. If the structural description to the left of the arrow and to the right of '/' is met, the rule must apply.
3. The rules operate to interpret m's and u's and to add those +'s, -'s, m's, and u's not already specified for a given matrix. Part of a rule cannot apply if a particular feature is already specified in a particular matrix, but application of the rest of the rule is not thereby blocked.
4. Except as noted, the usual rules for the application of phonological feature rules apply here.
5. The range of the environmental features introduced in these rules is restricted to sister categories, and does not extend to nieces, cousins, and other shirttail relations. (Note that this convention requires the difference between subject and predicate to be one of case rather than of IC's. This is not an undesirable result, since the intuition of native speakers on this point frequently differs from that of linguists; this also simplifies the description of VSO languages.)
6. In environmental features, a '-' means that a lexical item may never occur in the stated environment, while a single '+' means that the item must always occur in that environment.

7. Agreement phenomena are handled in rules of this type in terms of negatively specified environmental features. Thus a second person plural verb does not have to require the presence of a second person plural subject at any stage of the derivation, but merely refuses to occur in the environment of any subject which is specified in any other way. Third person singular verbs will allow only third person singular pronouns, or noun or sentential subjects which have no person features at all.

8. The occurrence and cooccurrence possibilities of case relations within a sentence will be handled by environmental features on verbs, and regularities will be stated in redundancy rules. For example, the requirement that a maximum of one representative of each case relation appear in any simple sentence could be easily stated by a redundancy rule on verbs, given the sister convention of 5. above. However, this restriction will probably turn out to be more situational than grammatical (see Taylor, forthcoming).

The second type of rules (7-24) I have called 'U Specification Rules.' They state which features are relevant for which categories, and thus they take the place of a general convention which would mark every entry for every feature. This set includes key language-specific rules which state which members of the universal set of features are relevant for a particular language. If, for example, a language has grammatical gender in nouns, say, and dual in verbs and pronouns, the development of these categories would be triggered by rules introducing the features [u masc] and [u dual] on the appropriate lexical categories here.

U Specification Rules

7. [ ] → [u derived, u Det, u N] — U

8. {[m Det], [m N]} → [u plur, u Nom, u def] — u

9. [m N] → [u pron, u Voc] — G

10. [u pron] → [u mass] — U

11. [m Det] → [u art] — E

12. [m def, u art] → [u mass] — E

13. [m def, u pron] → [u [+art] ___] — E

14. [m pron] → [u addr] — U

15. [m def, u pron] → [u surn] — G

16. {[m anim], [m surn]} → [u masc] — u

17. [u art] → [u numb] — E

18. $\begin{bmatrix} \text{u art} \\ \text{u def} \end{bmatrix}$ → [u prox] E

19. $\begin{bmatrix} \text{m pron} \\ \text{u spkr} \\ \text{u addr} \\ \text{u plur} \end{bmatrix}$ → [u anim] u

20. [m Det] → [u DETPRON] E

21. [m pron] → [u POSSPRON] E

22. [u pron] → [u SPLUR] E

23. $\begin{bmatrix} \text{u mass} \\ \text{u pron} \end{bmatrix}$ → [u CM] E

24. $\begin{bmatrix} \text{u pron} \\ \text{u def} \end{bmatrix}$ → $\begin{bmatrix} \text{u TITLE} & \text{E} \\ \text{u FEMINAME} & \text{G} \\ \text{u PSURN} & \text{G} \\ \text{u UNIQ} & \text{E} \\ \text{u COLLECT} & \text{E (Br)} \end{bmatrix}$

The third set of rules (25-33 and 43-77) are the actual marking conventions. They interpret the m's and u's as pluses and minuses with the 'u' value generally assumed to be the opposite of the 'm' value by convention (cf. Chomsky and Halle, p. 403). There are, however, numerous exceptions to this convention. In rules 52-56, for example, the marked value for definite with nouns is plus, and with determiners and pronouns is minus, while the unmarked value is plus/minus for nouns and plus for pronouns and determiners. This corresponds to the claim that normal nouns may be definite or indefinite, while special ones like Cowznowski are always definite. The pronouns, however, are normally definite, for obvious semantic reasons, and marked pronouns are indefinite.

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Marking Conventions I

25. [m SPLUR] → [-SPLUR] E

26. [m DETPRON] → [-DETPRON] E

27. [m POSSPRON] → [+POSSPRON] E

28. [m CM] → [+CM] U

29. [m PSURN] → [+PSURN] G

30. [m FEMINAME] → [+FEMINAME] G

31. [m UNIQ] → [+UNIQ] G

32. [m COLLECT] → [+COLLECT] E

33. [m derived] → [+derived] U

Marking Conventions II

43. [mN] → [+N] U

44. [m plur] → [+plur] U

45. [u plur] → [-plur] / { [___ ; m Det ; m numb] ; [___ ; m pron ; u spkr ; u addr ; u def] ; [___ ; m spkr] ; [___ ; m mass] } E

46. [u plur] → [±plur] U

47. [m mass] → [+mass] U

48. [u mass ; m Det ; u numb] → [±mass] E

49. [u mass] → [-mass] U

50. [m addr] → [+addr] E

51. [u Voc] → [±Voc] U

52. [m def] → [-def] / $\left\{ \begin{bmatrix} ____ \\ \text{m pron} \end{bmatrix}, \begin{bmatrix} ____ \\ \text{m Det} \end{bmatrix} \right\}$ U

53. $\begin{bmatrix} \text{+Voc} \\ \text{m def} \end{bmatrix} \rightarrow \begin{bmatrix} \text{-[+Det]}____ \\ \text{-Nom} \\ \text{+addr} \end{bmatrix}$ E

54. [m def] → $\begin{bmatrix} \text{+def} \\ \pm\text{[+Det]}____ \\ \text{-plur} \end{bmatrix}$ E

55. [u def] → [+def] / $\left\{ \begin{bmatrix} ____ \\ \text{m pron} \end{bmatrix}, \begin{bmatrix} ____ \\ \text{m Det} \end{bmatrix} \right\}$ U

56. [u def] → [±def] U

57. [m Det] → [+Det] U

58. [m prox] → [+prox] U

59. [m art] → [+art] U

60. [m masc] → [-masc] U

61. [m anim] → [+anim] U

62. [m numb] → [+numb] E

63. [m Nom] → [-Nom] U

64. [u Nom] → [+Nom] / $\left\{ \begin{bmatrix} ___ \\ \text{u addr} \\ \text{u spkr} \\ \text{+plur} \end{bmatrix} \begin{bmatrix} ___ \\ \text{+anim} \end{bmatrix} \begin{bmatrix} ___ \\ \text{m spkr} \end{bmatrix} \right\}$ E

65. [u Nom] → [±Nom] U

66. $\begin{bmatrix} \text{u spkr} \\ \text{m addr} \end{bmatrix}$ → [-spkr] U

67. $\begin{bmatrix} \text{u addr} \\ \text{m spkr} \\ \text{-plur} \end{bmatrix}$ → [-addr] U

68. $\begin{bmatrix} \text{u addr} \\ \text{m spkr} \\ \text{+plur} \end{bmatrix}$ → [±addr] E

69. [m spkr] → [+spkr] U

70. [m addr] → [+addr] U

71. [u addr] → [-addr] U

72. [m surn] → [-surn] u

73. [m [+art] ____] → [+[+art] ____] E

74. [m pron] → [+pron ; -[+Adj]____ ; -[+Det]____] G

75. [u pron ; <+def> ; ⟨-def, -plur, -mass⟩] → [-pron ; <+[+Det]____>] F

76. [+N ; α def] → [-[- α def]____] U

77. [+N ; α mass] → [-[- α mass]____] U

The fourth set of rules (34-42) are derivational rules. Like the previous marking conventions, they state generalities about the relations between lexical items. However, while the previous rules expanded lexical entries into the various lexical items for which they were abbreviations, derivational rules predict the existence and properties of new lexical items of different classes on the basis of other lexical items. These rules are not transformations, since they refer only to single lexical items out of context, not to syntactic structures. They differ from other redundancy rules in that they construct new lexical items on the basis of the old, instead of developing matrices which are already present in the lexicon. These devices can handle broad regularities such as the relation between verbs and gerundive nominalizations, or restricted sub-regularities, such as the relation between some adjectives and corresponding inchoative verbs. The applicability of the rules is determined by semantic or rule features of lexical items.

In general, such derivational rules can be read, 'Given a lexical entry with the features F_i, there is another lexical item with the same underlying phonological representation and the same set of features F_i, but with the following features added

or changed from the original.' It is assumed here that these rules operate on lexical entries after redundant markings have been added but before any markings except those for rule features have been interpreted. Some of the rules derive lexical items from members of different syntactic categories. For example, number 36 is a rule which derives the pronouns this, these, that, those, several, much, and some from the corresponding determiners. Number 39 derives a class of determiners, the so-called possessive pronouns, from personal pronouns. A further morphophonemic rule is required to get the proper phonological outputs. More complications are involved with this rule. It is a minor rule, applying to only three to five of the twelve personal pronouns, and some of the possessive pronouns, like our, are not derived by this rule at all, but constitute separate entries.

Most of the derivational rules listed in this set, however, operate within the category of nouns, predicting members of one subclass on the basis of another. The nouns given here are classified on the basis of the distinctions proper-common and mass-count, among others. It is well known, however, that these nouns can cross classes, sometimes very freely. This class-hopping can be appropriately treated as the same sort of phenomenon as the derivation of adverbs from adjectives or pronouns from

determiners. Thus, the first derivational rule listed, 34, derives mass nouns from count nouns, allowing us to put all our eggs in one basket with egg on our chin. Rule 37, on the other hand, derives count nouns from mass nouns, and allows us to have either a beer or some beer as the mood strikes us. Intuition will generally tell us whether a noun is more basically count or mass, and our choice can be confirmed or corrected by seeing if it facilitates the statement of various generalities. Thus, there is a general fact that basically mass nouns derived as count nouns can be interpreted as units or as generics--a beer is either a glass of beer or a kind of beer. This is not true of basically count nouns--'egg' may be mass, but 'an egg' is neither a unit of egg material nor a kind of egg material.

Rule 35 derives proper nouns from common ones marked to allow its application. In the case of the entries for rose, daisy, and king, entries must be marked for whether they are masculine, feminine, or surnames in their new existences. The process from proper to common (38) is much more general, though perhaps less common. It is quite possible to say, 'There are three angry Marvins in this room,' but in spite of the orthographic conventions, 'Marvin' is no longer either semantically or grammatically a

proper noun, but rather a common noun derived by a general process from a proper noun. This allows us to account for the three-way contrast Perlmutter cites (pp. 12-13) for Paris, the Paris, and a Paris, as in:

Paris is ours.

He left a Paris that had become cold and impersonal

the Paris that I love

The first 'Paris' is a normal proper noun, thus permanently definite and allergic to articles. The second and third are common nouns, derived from the proper noun and thus still carrying most of its semantic features, but grammatically allowing not only definite and indefinite, as Perlmutter noted, but even singular and plural, as in 'There are seven Parises in the Midwest, but I think the three Parises in Wisconsin are the most romantic.'

Treating all the above phenomena as lexical derivation is reasonable for several reasons: it allows us to show how lexical items can be basically in one class yet sometimes occur in another with very different grammatical properties, and it is in agreement with the fact that much derivation is sporadic and variable in its degree of generality.

Derivational Rules

34. Count-mass

$$\begin{bmatrix} +CM \\ -derived \\ u\ mass \end{bmatrix} \rightarrowtail \begin{bmatrix} +derived \\ m\ mass \end{bmatrix}$$

He ate two eggs$_1$ for breakfast, which may account for the egg$_2$ on his chin.

35. Common-proper

$$\begin{bmatrix} \propto FEMINAME \\ -derived \\ <+UNIQ> \end{bmatrix} \rightarrowtail \begin{bmatrix} +derived \\ <m\ [+art]____> \\ m\ def \\ -\propto masc \end{bmatrix}$$

Tarzan and Jane called their first boy$_1$ Boy$_2$.

Daisy$_2$ received a rose$_1$, Rose$_2$ received a daisy$_1$, and the Pope$_2$ got a popsicle, a puzzling prize for a pope$_1$.

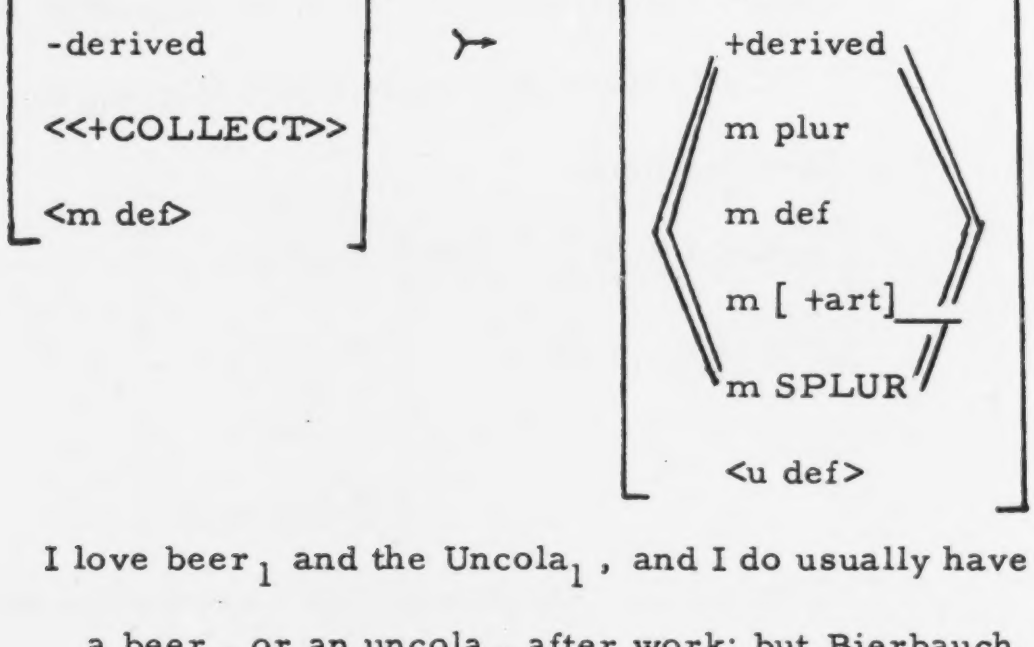
36. Determiner-pronoun

$$\begin{bmatrix} +DETPRON \\ u\ art \end{bmatrix} \rightarrowtail \begin{bmatrix} u\ Det \\ m\ pron \end{bmatrix}$$

I like some$_1$ linguists, but some$_2$ turn me off.

Your$_1$ wife doesn't cook as well as mine$_2$, so what makes you think I prefer yours$_2$?

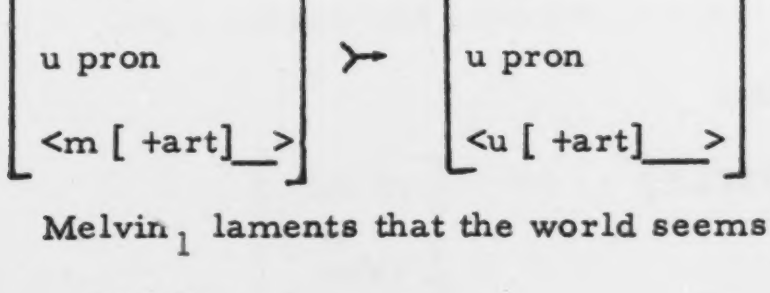
37. Mass-count



I love beer$_1$ and the Uncola$_1$, and I do usually have a beer$_2$ or an uncola$_2$ after work; but Bierbauch is one beer$_2$ I avoid on principle. Thanks anyway, but to me, Bierbauch is just another uncola$_2$.

How can you speak of 'good government$_1$' here, Smythe, when the government$_2$ have elevated racism to the status of national policy?

38. Proper-common



Melvin$_1$ laments that the world seems to be full of Melvins$_2$.

Makers of the Uncola$_1$ suggest you put some Uncola$_2$ in your tank.

Since The Hague$_1$ has so much linguistic prestige, the LSA plans to build a new Hague$_2$ in Cambridge.

39. Pronoun-determiner

$$\begin{bmatrix} +\text{POSSPRON} \\ \text{m pron} \end{bmatrix} \rightarrowtail \begin{bmatrix} \text{u pron} \\ \text{m Det} \\ \text{u plur} \\ (+\text{Genitive}) \end{bmatrix}$$

I love you$_1$, Ndwelele, but I can't quite stomach your$_2$ mother.

40. Common-proper surname

$$\begin{bmatrix} +\text{PSURN} \\ -\text{derived} \end{bmatrix} \rightarrowtail \begin{bmatrix} \text{u surn} \\ +\text{derived} \end{bmatrix}$$

The king$_1$ plucked four white roses$_1$ and bestowed one on Miss Rose$_2$, one on Miss King$_2$, and two on Miss White, because Starosta hadn't gotten around to deriving her surname yet.

41. Common-title

$$[+\text{TITLE}] \rightarrowtail \begin{bmatrix} \text{m def} \\ +\text{Voc} \\ \text{u pron} \end{bmatrix}$$

Thanks, but we already have a doctor$_1$, Doctor$_2$.

42. Title-compounding

$$\begin{bmatrix} +\text{TITLE} \\ -\text{derived} \end{bmatrix} + \begin{bmatrix} \text{m def} \\ \text{u pron} \end{bmatrix} \rightarrowtail \begin{bmatrix} \text{u addr} \\ +\text{derived} \end{bmatrix} (?)$$

Leutenant$_1$! Cowznowski$_1$ is calling himself

Leutenant Cowznowski$_2$ again!

The last set of feature rules, from 78 to 93, includes rules which formally belong to the first three types; they illustrate a method of using lexical redundancy rules to assign case to nouns and prepositions. In Fillmore's latest grammar, of course, case comes in as a psuedo-syntactic node in the deep structure. This is a great formal complication in the phrase structure, but Fillmore is willing to accept this complication because he can find no better alternative. In particular, he rules out the obvious and formally far less radical solution being proposed in this paper partly because he feels that case could not be a feature of individual nouns. There is, however, a fair amount of evidence indicating that this may be over-hasty. For example, compare the syntactic behavior of case with that of gender and number, which most linguists would agree <u>are</u> features of nouns. First of all, nouns are frequently inflected for case. Determiners and adjectives may agree with nouns for number and gender, and they may also agree in case. (Prepositions too may have case-determined forms, as in French.) If verbs agree with their subjects in a language, this agreement may be in terms of number, as in English, gender as in Hindi and Swahili, or case, as in Philippine and Formosan languages.

One difficulty with this approach that Fillmore (personal communication) has indicated is that in a deep structure in which a whole embedded sentence stands in a case relation to the main verb, one would have to create a dummy head noun to carry the case. There is another possible solution, however, a solution which is possible only if we accept the correctness of the lexicalist hypothesis. This is to assume 1) that in a sentence such as, 'I deplore the destruction of the villages,' there is no embedded S, but rather a direct object NP with 'destruction', its head, carrying the case, and 2) that in sentences such as 'I know that she hates cheese' or 'He tried to see the parade,' the complementizers 'that' and 'to' are present in the deep structure as case carriers.

Case Marking Rules A: Case realizations

78. [+Nom] → $\begin{bmatrix} u\ A \\ u\ O \end{bmatrix}$ G

79. [-Nom] → $\begin{bmatrix} u\ A \\ u\ I \\ u\ O \\ u\ L \end{bmatrix}$ U

80. [u A] → [± A] U

81. [u O] → [+ O] / $\begin{bmatrix} ___ \\ + \text{Nom} \\ - \text{A} \end{bmatrix}$ G

→ [- O] / $\begin{bmatrix} ___ \\ + \text{A} \end{bmatrix}$ U

→ [± O] G

82. [u I] → [- I] / $\left\{ \begin{bmatrix} ___ \\ + \text{A} \end{bmatrix} \right.$ U
$\left. \begin{bmatrix} ___ \\ + \text{O} \end{bmatrix} \right\}$

→ [± I]

83. [u L] → [+ L] / $\begin{bmatrix} ___ \\ - \text{A} \\ - \text{I} \\ - \text{O} \end{bmatrix}$ U

→ [- L]

Case Marking Rules B: Case Relations

84.	[+A] →	[± Agent]	U
85.	[+A, -Agent] →	[+ Instrument]	U
86.	[+ I] →	[± Instrument]	U
87.	[-Nom, + I, -Instrument] →	[+ Comitative]	G
88.	{ [+ O], [+ L] } →	[± Experiencer]	G
89.	[-Experiencer] →	[± Object]	E
90.	[- Object] →	[± Dative]	G
91.	[+ O, - Dative] →	[+ Instrument]	E
92.	[+ L, - Dative] →	[± time]	U
93.	[- Dative, - time] →	[± direction]	U

Constituent Structure Rules

94. $S \rightarrow (\left\{\begin{matrix} PP \\ NP \end{matrix}\right\}) \widehat{NP\ V}\ (NP)\ (NP)\ (PP)\ (PP)$

95. $PP \rightarrow \widehat{P\ NP}$

96. $NP \rightarrow (Det)N$

Unless there is some other very compelling counter-evidence that case is a totally unique phenomenon requiring a major revision of the form of the constituent structure, it is difficult to see why surface case, at least, should be treated any differently from gender or number, that is, as a feature of nouns and possibly of prepositions.

Note that I have referred to 'surface case' above. According to the rules I have presented here, there are two significant aspects of case that must be recognized in a grammar; Fillmore's case relations, symbolized in my rules by capitalized words, and case realizations, symbolized by single capital letters and the abbreviation Nom. The rules are designed to map case relations onto case realizations, with the latter considered theoretically significant categories drawn from a universal alphabet just as case relations are. This innovation was found necessary because although Fillmore's framework is suited to accounting for universal characteristics of case relations, it treats the realizations in various languages as arbitrary and unrelated. In his framework, it is accidental that instruments and agents may both be marked by the same preposition by, that instrument and Comitative may both be marked by with, and that Experiencer and Locative can both take the preposition to. Yet in unrelated languages like German and

a Munda language called Sora, Comitative and Instrument share a common postposition; Dative or Experiencer and Locative are realized in the same way in a wide variety of languages, including Australian and Philippine languages, Japanese, and Hebrew; and in practically every language I have looked into, including Tibetan and a New Guinea language called Bena-bena, the relation between the surface realization of Agent and Instrument is intimate, sometimes almost inseparable. A case grammar aspiring to explanatory adequacy, then, must include an inventory of case realization units as well as case relations, and provide a means of associating them, if it is to fit into a universal theory in which it seems very likely that some of these associations will be universal.

Finally, if the above approaches to describing lexical interrelations and the proposed modification of case formalisms continue to prove fruitful, and if we can define the scope of syntax as I have here, it may be possible to write grammars which are formally no more powerful than the model described in Chomsky's Aspects, perhaps even weaker in terms of transformations required, and yet, in the areas of lexical representation, derivation, and case, may at least come somewhat closer to defining and achieving explanatory adequacy.

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